

Remarks

In view of the above amendments and the following remarks, reconsideration of the rejections and further examination are requested.

A number of editorial amendments have been made to the specification and abstract. No new matter has been added to the application via these amendments. Due to the number of changes involved, a substitute specification and abstract have been prepared and are submitted herewith. Also submitted herewith are a marked-up copy of the specification and abstract indicating the changes incorporated therein.

Claims 1 and 5 have been rejected under 35 U.S.C. §102(b) as being anticipated by Amemiya (US 5,248,567). Claims 2 and 6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Amemiya in view of Hirota (US 3,944,650). Claims 3 and 4 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Amemiya in view of Struthers (US 2002/0110712). Claims 7-9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima (US 2002/0024038) in view of Prasad (US 6,153,163) and Roychowdhury (US 2003/0205458).

Claim 1 has been amended so as to include the limitations of claims 2 and 4 and to further distinguish the present invention, as recited therein, from the references relied upon in the above-mentioned rejections. Further, claims 2, 4-9, 13-16, 18-19, 21, 22, 24, 25, 27 and 28 have been canceled without prejudice or disclaimer to the subject matter contained therein. Additionally, new claims 29 and 30, which depend from claim 1, have been added.

It is also noted that claims 1, 3, 10-12, 17, 20, 23 and 26 have been amended to make a number of editorial revisions thereto. These revisions have been made to place the claims in better U.S. form. None of these amendments have been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

The above-mentioned rejections are submitted to be inapplicable to the amended claims for the following reasons.

Claim 1 is patentable over the combination of Amemiya, Hirota and Struthers, since claim 1 recites a fuel cell power generation apparatus including, in part, adsorbent reduction means for reducing an oxygen adsorbent, which has adsorbed oxygen, by use of a reformed gas

reformed in a fuel reforming device or an anode exhaust gas discharged from an anode of a fuel cell body. The combination of Amemiya, Hirota and Struthers fails to disclose or suggest the adsorbent reduction means as recited in claim 1.

Amemiya discloses a power generation plant including an oxygen removal means 30. The oxygen removal means 30 includes an oxygen agent 31, which can be an oxygen adsorbing agent or an oxygen reactive agent, to remove oxygen from purged gas output by a fuel reformer 24. Once the oxygen removal means 30 removes the oxygen from the purged gas, the purged gas is supplied to a containment vessel 28 of a fuel cell main unit 21. (See column 11, line 49 – column 12, line 6 and Figure 8).

In the rejection, the oxygen removal means 30 illustrated in Figure 8 is relied upon as corresponding to the claimed adsorbent reduction means. However, it is apparent that the oxygen removal means 30 utilizes the oxygen agent 31 to remove oxygen from the purged gas and does not use a reformed gas from the fuel reformer 24 or an anode exhaust gas discharged from an anode of the fuel cell main unit 21. Instead, Figure 8 clearly illustrates that the fuel reformer 24 directly supplies the reformed gas to the fuel cell main unit 21. As a result, the oxygen removal means 30 illustrated in Figure 8 fails to correspond to the claimed adsorbent reduction means.

Further, it is noted that Figure 7 of Amemiya discloses a different embodiment of the oxygen removal means 30 which includes a burner 31 to remove oxygen from the purged gas. However, as is clearly illustrated in Figure 7, the burner 31 operates with fuel supplied from an external source via a fuel supply pipe 33. (See column 10, lines 38-69 and Figure 7). It is clear that the oxygen removal means 30 illustrated in Figure 7 does not use the reformed gas from the fuel reformer 24 or an anode exhaust gas discharged from an anode of the fuel cell main unit 21.

In view of the above discussion, it is apparent that Amemiya fails to disclose or suggest the adsorbent reduction means as is now recited in claim 1. Therefore, Hirota and/or Struthers must disclose or suggest this feature in order for the combination of references to render claim 1 obvious.

Regarding Hirota, it discloses a process of contacting a waste gas with an alkaline absorbing solution, whereby most of the SO₂ and SO₃ in the waste gas is absorbed in the solution. (See column 2, lines 20-31). However, it is clear that Hirota fails to disclose or suggest

the absorbent reduction means as recited in claim 1. As a result, Struthers must disclose or suggest this feature in order for the combination of references to render claim 1 obvious.

Regarding Struthers, it discloses the use of a sulfur absorbent material for the removal of elemental sulfur components from a hydrocarbon fuel 10. The sulfur absorbent material can be made from various porous mixed metal oxide aerogel microspheres of cerium, zinc, strontium, magnesium, copper, lanthanum, barium, iron, etc. (See paragraph [0084]). However, it is apparent that Struthers also fails to disclose or suggest the adsorbent reduction means as recited in claim 1.

In consideration of the above discussion, Amemiya, Hirota and Struthers do not, either alone or combination, disclose or suggest adsorbent reduction means for reducing an oxygen adsorbent, which has adsorbed oxygen, by use of a reformed gas reformed in a fuel reforming device or an anode exhaust gas discharged from an anode of a fuel cell body, which feature is recited in amended claim 1. Therefore, one of ordinary skill in the art would not have been motivated to modify or combine the references so as to obtain the invention as recited in amended claim 1.

Regarding (1) Iijima, (2) Prasad and (3) Roychowdhury, these references are relied upon as disclosing (1) a reformer 10 including a first carbon dioxide recovery device 51₁ for recovering carbon dioxide from combustion exhaust gas, (2) amine process equipment 68d for removing carbon dioxide 93 from a product, and (3) an apparatus for separating hydrogen from carbon dioxide. However, none of these references disclose or suggest the adsorbent reduction means as is now recited in claim 1.

Further, it is also requested that withdrawn claims 10-12, 17, 20, 23 and 26 be given due consideration as being dependent from claim 1, which is patentable over the references relied upon in the rejections.

Because of the above-mentioned distinctions, it is believed clear that claims 1, 3, 10-12, 17, 20, 23, 26, 29 and 30 are allowable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1, 3, 10-12, 17, 20, 23, 26, 29 and 30. Therefore, it is submitted

that claims 1, 3, 10-12, 17, 20, 23, 26, 29 and 30 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

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